

Trend Study 8B-5-00

Study site name: Bennett Ranch.

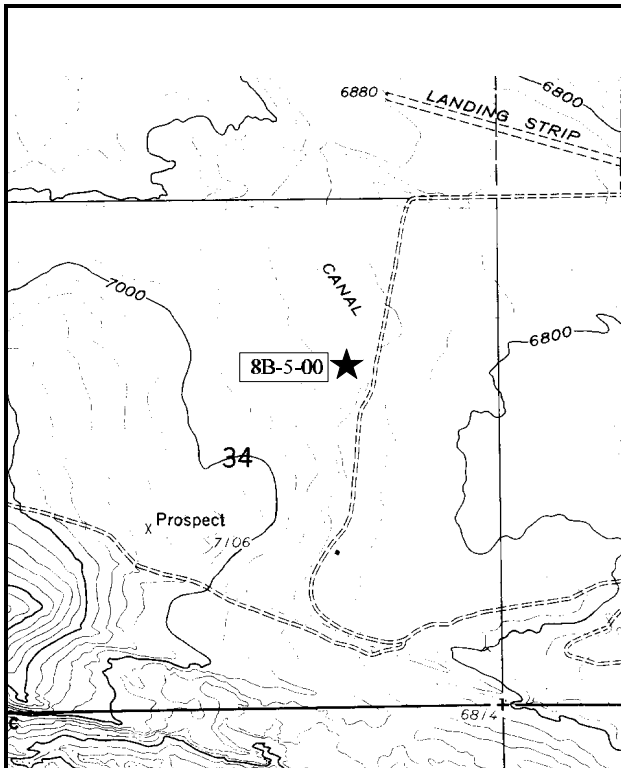
Range type: Big Sagebrush-Grass.

Compass bearing: frequency baseline 200°M.

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

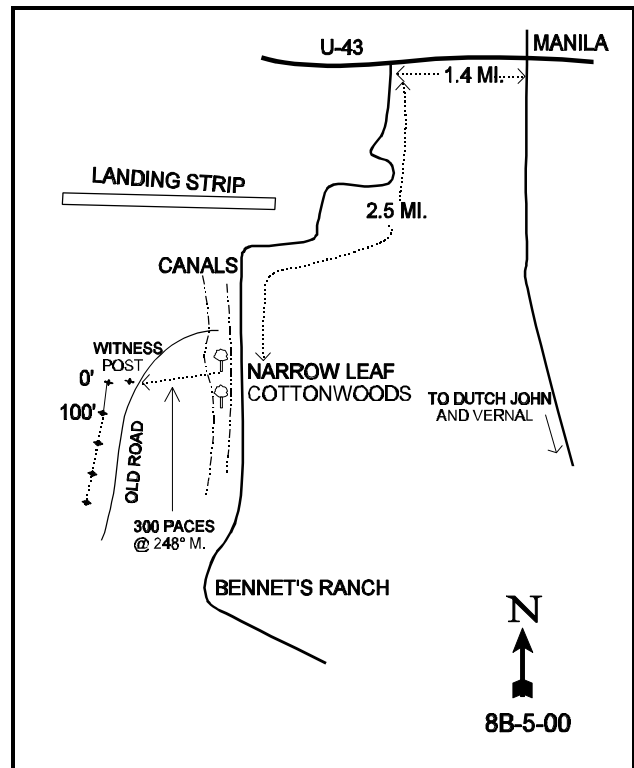
LOCATION DESCRIPTION

From the intersection of Highway U-43 and Main Street in Manila, proceed west on U-43 for 1.4 miles to a dirt road (Bennion Lane) on the left. Turn south and go 2.5 miles to a narrowleaf cottonwood on the right (west) side of the road. From the cottonwood, the 0-foot baseline stake is 300 paces away at a bearing of 234°M.



Map Name: Jessen Butte

Township 3N, Range 19E, Section 34



Diagrammatic Sketch

UTM 4534184 N, 603794 E

DISCUSSION

Trend Study No. 8B-5 (9-5)

The Bennett Ranch trend study is located on Bennett Ranch property which is privately owned. It samples a Wyoming big sagebrush community, located at the foot of Jensen Butte and above the irrigated hay fields and pastures near Manila. Slope is 5% to 10% with a northeast facing aspect and an elevation of approximately 6,920 feet. The area is used by cattle and wintering deer and elk. Pellet group data from 2000 estimate 14 elk, 9 deer, and 6 cow days use/acre (35 edu/ha, 22 ddu/ha and 15 cdu/ha). Deer and cattle use appears to have been much heavier in 1995, due to the substantially higher quadrat frequencies of pellet groups (see pellet group table).

Soils are relatively shallow, alluvially deposited, and rocky on the surface and throughout the profile. Rooting depth is restricted in some areas as evidenced by the abundance of black sagebrush. Effective rooting depth is estimated at a little less than 9 inches. Soil texture is a sandy clay loam with a neutral pH. Phosphorus is limited at only 6 ppm, where values less than 10 ppm can limit normal plant growth and development. Ground cover is typical for a Wyoming big sagebrush site with a moderately high percentage of bare ground. Some erosion is occurring on the site but it is not serious due to the lack of slope.

The key browse includes Wyoming big sagebrush and black sagebrush which provide over 80% of the browse cover. Wyoming big sagebrush currently provides 68% of the shrub cover with a density estimated at 5,260 plants/acre in 2000. These shrubs have been heavily utilized in the past with 88% of the plants sampled being heavily hedged (>60% of stems browsed) in 1982. Vigor was also poor on 29% of the population. Use was more moderate in 1988 and 1995 with improved vigor. Use is currently ('00) moderate to heavy. However, due to the dry conditions, 21% of the population was classified as having poor vigor. Percent decadence has increased from 7% in 1995 to 39% in 2000. In addition, 54% of the decadent plants sampled were classified as dying. No seedlings were encountered in 2000, with young plants only accounting for 2% of the population. As a result, the population of Wyoming big sagebrush appears to be in a state of decline. Due to the limited effective rooting depth of the soil, this is a marginal site for Wyoming big sagebrush with this high of a density during drought years. Sagebrush sampled during the very dry summer of 2000 produced very small leaves with few seed heads. Many of the plants were dropping leaves to conserve water.

Black sagebrush appears to have a more stable population of 4,060 plants/acre in 2000. They are relatively small plants, measuring only 6 inches in height with a crown diameter averaging 15 inches. Use has been light to moderate since 1982 with normal vigor on most plants. Other preferred browse encountered on the site include small numbers of winterfat, white rubber rabbitbrush and slenderbush eriogonum.

Grasses and forbs are quite diverse for a Wyoming big sagebrush site. Grasses combine to produce about 8% average cover, while forbs on average make up about 5% cover. Dominant grasses include: thickspike wheatgrass, muttongrass, Sandberg bluegrass, bottlebrush squirreltail and needle-and-thread grass. The only abundant forbs include Hood's phlox and scarlet globemallow. Utilization of the grasses has been heavy in the past but there was no apparent use observed in 2000.

1982 APPARENT TREND ASSESSMENT

Soil trend appears stable to declining. It is fortunate that this site occurs on nearly level terrain, otherwise erosion and soil loss would be much greater. Vegetative condition is rather poor due to heavy browsing. Trend is difficult to judge but it is considered slightly downward at this time. The herbaceous understory is obviously depleted but it is not immediately apparent if the shrub density is also declining.

1988 TREND ASSESSMENT

An increase in most ground cover components was noted in 1988. The percentage of bare soil decreased from 34% in 1982 to 23.5%. There is some soil movement in the bare interspaces. A healthier herbaceous understory would do much to help limit erosion on the gentle slope. Trend for soil is slightly up. Trend for black sagebrush and Wyoming big sagebrush is up with increased densities, reduced heavy use, and improved vigor. Trend for the herbaceous understory is also up slightly due to increased quadrat frequency of grasses and forbs.

TREND ASSESSMENT

soil - slightly up (4)

browse - up (5)

herbaceous understory - slightly up (4)

1995 TREND ASSESSMENT

Percent litter cover has declined slightly as has percent bare ground. The soil trend is considered stable at this time. Trend for Wyoming big sagebrush is slightly up due to decreased heavy use, improved vigor, good recruitment, and a low decadency rate of only 7%. The population density has declined since 1988 but this decline came mostly from the decadent age class. The number of mature plants has increased. Black sagebrush is of secondary importance on this site. It displays a stable trend but produces little forage due to its small size. The herbaceous understory has a slightly downward trend. Sum of nested frequency of perennial grasses and forbs declined slightly.

TREND ASSESSMENT

soil - stable (3)

browse - slightly up (4)

herbaceous understory - slightly down (2)

2000 TREND ASSESSMENT

Trend for soil continues to be stable. Percent cover of bare ground increased slightly while cover from litter declined slightly. However, percent cover of vegetation has increased and the ratio of protective ground cover (vegetation, litter and cryptogams) to bare ground has improved. Trend for the key browse species, Wyoming big sagebrush, is down. Density has declined and poor vigor and percent decadence have increased. In addition, over half of the 2,060 decadent plants sampled were classified as dying. Reproduction is poor with no seedlings sampled and young plants account for only 2% of the population. It appears that the restricted rooting depth of the shallow soil makes this a marginal site for Wyoming big sagebrush at these densities during dry years. In contrast, black sagebrush, which is adapted to more shallow soils, has a stable trend. It displays light to moderate use, good vigor and low decadence. Since Wyoming big sagebrush provides 68% of the browse cover and the majority of the available forage (with winter snow cover), the browse trend is considered slightly down at this time. Trend for the herbaceous understory is stable. Sum of nested frequency for perennial grasses and forbs declined slightly but not enough to warrant a downward trend. The most dominant grasses, thickspike wheatgrass, mutton bluegrass and needle-and-thread, did not change significantly in nested frequency.

TREND ASSESSMENT

soil - stable (3)

browse - slightly down (2)

herbaceous understory - stable (3)

HERBACEOUS TRENDS --
Herd unit 08B, Study no: 5

T y p e	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
G	Agropyron cristatum	1	-	-	-	1	-	-	-	-
G	Agropyron dasystachyum	_a 209	_{ab} 220	_b 247	14	77	79	82	2.75	3.98
G	Agropyron intermedium	-	-	3	-	-	-	1	-	.03
G	Hilaria jamesii	-	-	3	-	-	-	1	-	.00
G	Koeleria cristata	_b 47	_a 19	_a 7	1	18	8	4	.11	.07
G	Oryzopsis hymenoides	_a 24	_b 35	_a 14	29	10	21	8	.43	.19
G	Poa fendleriana	_b 177	_a 47	_a 81	45	67	21	32	.88	1.50
G	Poa secunda	_a 68	_b 71	_a 61	-	30	31	28	.74	.46
G	Sitanion hystrix	40	81	17	13	19	32	8	1.36	.38
G	Stipa comata	_b 111	_{ab} 104	_a 87	55	59	48	32	1.99	1.93
Total for Annual Grasses		0	0	0	0	0	0	0	0	0
Total for Perennial Grasses		677	577	520	157	281	240	196	8.27	8.57
Total for Grasses		677	577	520	157	281	240	196	8.27	8.57
F	Agoseris glauca	_a -	_a -	_b 12	-	-	-	5	-	.02
F	Arabis spp.	_b 4	_b 16	_a -	-	3	6	-	.03	-
F	Astragalus spp.	3	-	1	2	2	-	1	-	.00
F	Calochortus nuttallii	_b 7	_b 6	_a -	-	3	3	-	.01	-
F	Castilleja spp.	_a -	_a -	_b 4	-	-	-	3	-	.04
F	Chaenactis douglasii	_a -	_a 1	_b 17	-	-	1	8	.00	.09
F	Chenopodium leptophyllum (a)	-	_b 47	_a -	2	-	20	-	.10	-
F	Cirsium spp.	-	-	3	-	-	-	1	-	.00
F	Crepis acuminata	_b 16	_b 12	_a 1	-	11	8	1	.04	.00
F	Descurainia pinnata (a)	_{ab} 13	_b 32	_a 2	-	9	17	1	.16	.00
F	Erigeron spp.	_a -	_b 4	_b 3	7	-	4	3	.02	.01
F	Haplopappus acaulis	-	-	3	-	-	-	1	-	.03
F	Hymenoxys richardsonii	_b 17	_a 1	_{ab} 7	5	8	1	3	.03	.09
F	Lesquerella alpina	-	4	2	-	-	2	1	.03	.00
F	Leucelene ericoides	_{ab} 23	_a 5	_b 31	-	10	3	17	.04	.38
F	Linum lewisii	_{ab} 37	_b 62	_a 26	3	21	29	15	.21	.13
F	Machaeranthera canescens	1	3	8	-	1	2	4	.18	.09
F	Penstemon humilis	_b 7	_a -	_a 1	-	4	-	1	-	.03
F	Physaria acutifolia	-	-	1	-	-	-	1	-	.00
F	Phlox hoodii	_b 146	_a 94	_{ab} 124	42	63	45	56	2.59	2.97
F	Senecio multilobatus	-	-	4	-	-	-	2	-	.03
F	Sphaeralcea coccinea	_a 80	_b 119	_{ab} 98	38	38	50	44	1.36	1.22
F	Townsendia incana	_b 7	_a -	_a -	-	3	-	-	-	-

T y p e	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
F	Unknown forb-perennial	_b 8	_a -	_a -	-	3	-	-	-	-
Total for Annual Forbs		13	79	2	0	9	37	1	0.26	0.00
Total for Perennial Forbs		356	327	346	27	170	154	167	4.57	5.19
Total for Forbs		369	406	348	27	179	191	168	4.84	5.19

Values with different subscript letters are significantly different at $\alpha = 0.10$

BROWSE TRENDS --

Herd unit 08B, Study no: 5

T y p e	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	Artemisia nova	46	51	5.64	4.62
B	Artemisia tridentata wyomingensis	97	94	16.11	16.09
B	Ceratoides lanata	8	7	.60	.04
B	Chrysothamnus nauseosus hololeucus	1	0	.15	-
B	Chrysothamnus viscidiflorus viscidiflorus	9	19	.33	.39
B	Eriogonum microthecum	3	4	.03	.01
B	Gutierrezia sarothrae	25	61	.04	1.34
B	Juniperus osteosperma	-	-	.93	-
B	Opuntia spp.	30	41	1.58	1.11
B	Pinus edulis	0	0	-	.00
Total for Browse		219	277	25.44	23.62

BASIC COVER --

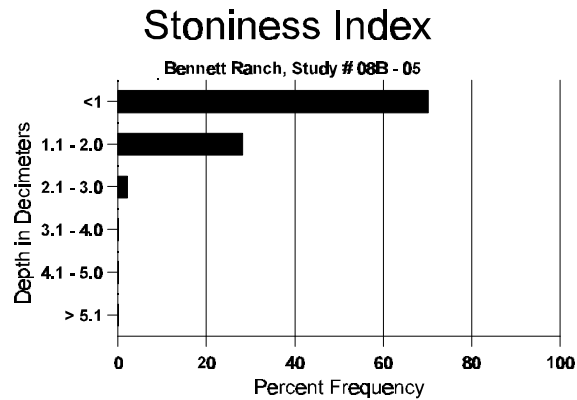
Herd unit 08B, Study no: 5

Cover Type	Nested Frequency		Average Cover %			
	'95	'00	'82	'88	'95	'00
Vegetation	334	339	3.00	6.75	32.09	41.79
Rock	239	129	5.50	9.00	9.55	5.67
Pavement	256	285	11.50	14.25	5.40	8.54
Litter	390	366	45.25	41.25	39.65	36.47
Cryptogams	96	194	.75	5.25	3.51	6.07
Bare Ground	319	315	34.00	23.50	21.24	29.50

SOIL ANALYSIS DATA --

Herd Unit 8B, Study # 5, Study Name: Bennett Ranch

Effective rooting depth (inches)	Temp °F (depth)	pH	% sand	% silt	% clay	% OM	PPM P	PPM K	dS/m
8.83	73.6 (10.16)	7.1	61.4	16.0	22.6	2.1	6.0	92.8	0.9



PELLET GROUP FREQUENCY --

Herd unit 08B, Study no: 5

Type	Quadrat Frequency		Pellet Transect	
	'95	'00	Pellet Groups per Acre 00	Days Use per Acre (ha) 00
Rabbit	3	2	70	N/A
Elk	10	9	183	14 (35)
Deer	32	7	122	9 (23)
Cattle	10	3	70	6 (14)

BROWSE CHARACTERISTICS --

Herd unit 08B, Study no: 5

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia frigida																		
Y	'82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	'88	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	'95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	'00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	'82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	'88	-	1	1	-	-	-	5	-	-	7	-	-	-	466	5	7	
	'95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	'00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'82 00%			00%			00%										
		'88 13%			13%			00%										
		'95 00%			00%			00%										
		'00 00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	532		-			
												'95	0		-			
												'00	0		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia nova																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	11	-	-	1	-	-	-	-	-	11	1	-	-	800		12	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
Y	82	2	-	-	-	-	-	-	-	-	2	-	-	-	133		2	
	88	12	3	1	-	-	-	-	-	-	16	-	-	-	1066		16	
	95	18	8	-	-	-	-	-	-	-	26	-	-	-	520		26	
	00	13	-	-	-	-	-	-	-	-	13	-	-	-	260		13	
M	82	25	2	-	-	-	-	-	-	-	27	-	-	-	1800	6 12	27	
	88	14	26	8	-	-	-	-	-	-	48	-	-	-	3200	7 14	48	
	95	77	29	5	-	-	-	-	-	-	111	-	-	-	2220	7 20	111	
	00	139	22	8	5	-	-	-	-	-	174	-	-	-	3480	6 15	174	
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	10	7	1	-	-	-	-	-	-	14	-	2	2	1200		18	
	95	-	-	-	1	-	-	-	-	-	-	-	-	1	20		1	
	00	15	1	-	-	-	-	-	-	-	9	-	-	7	320		16	
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'82			07%			00%			+65%							
		'88			44%			12%			-50%							
		'95			27%			04%			+32%							
		'00			11%			04%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	1933	Dec:	0%			
												'88	5466		22%			
												'95	2760		1%			
												'00	4060		8%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata wyomingensis																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	10	-	-	-	-	-	-	-	-	-	-	-	-	666		10	
	95	2	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	82	1	-	-	-	-	-	-	-	-	1	-	-	-	66			
	88	11	3	-	-	-	-	-	-	-	14	-	-	-	933		14	
	95	17	11	3	-	-	-	-	-	-	31	-	-	-	620		31	
	00	4	-	-	-	-	-	-	-	-	4	-	-	-	80		4	
M	82	3	3	47	-	-	-	-	-	-	41	-	12	-	3533	11 17	53	
	88	2	31	24	-	-	-	-	-	-	51	1	4	1	3800	13 16	57	
	95	41	149	59	-	2	-	-	-	-	243	4	4	-	5020	14 27	251	
	00	42	54	32	-	6	22	-	-	-	149	7	-	-	3120	12 25	156	
D	82	-	-	5	-	-	-	-	-	-	-	-	1	4	333		5	
	88	15	12	9	-	-	-	-	-	-	21	2	4	9	2400		36	
	95	-	7	14	1	-	-	-	-	-	15	-	-	7	440		22	
	00	32	55	10	-	-	6	-	-	-	45	2	-	56	2060		103	
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	280		14	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	200		10	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		05%			88%			29%			+45%							
'88		43%			31%			17%			-15%							
'95		56%			25%			04%			-13%							
'00		44%			27%			21%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	3932	Dec:	8%			
												'88	7133		34%			
												'95	6080		7%			
												'00	5260		39%			
Ceratoides lanata																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	1	-	-	-	-	-	1	-	-	-	20		1	
	00	1	3	-	-	-	-	-	-	-	4	-	-	-	80		4	
M	82	4	-	-	-	-	-	-	-	-	4	-	-	-	266	4 6	4	
	88	-	2	4	-	1	-	-	-	-	7	-	-	-	466	4 5	7	
	95	2	6	1	-	1	-	-	-	-	10	-	-	-	200	5 8	10	
	00	3	1	-	-	-	-	-	-	-	4	-	-	-	80	4 6	4	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%			+43%							
'88		43%			57%			00%			-53%							
'95		64%			09%			00%			-27%							
'00		50%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	266	Dec:	-			
												'88	466		-			
												'95	220		-			
												'00	160		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus nauseosus hololeucus																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	1	-	-	-	-	-	-	-	-	-	1	-	-	20	17	13	1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	20		-			
												'00	0		-			
Chrysothamnus viscidiflorus viscidiflorus																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	2	-	-	-	-	-	-	-	-	-	2	-	-	40			2
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	10	2	-	-	-	-	-	-	-	-	12	-	-	240	9	14	12
	00	20	-	-	-	-	-	-	-	-	-	20	-	-	400	9	15	20
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	2	1	-	-	-	-	-	-	-	-	1	-	-	60			3
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		17%			00%			00%			+52%							
'00		04%			00%			08%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	0%			
												'88	0		0%			
												'95	240		0%			
												'00	500		12%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total	
		1	2	3	4	5	6	7	8	9	1	2	3	4					
Eriogonum microthecum																			
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	00	1	-	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	95	7	-	-	-	-	-	-	-	-	-	7	-	-	-	140	4	7	7
	00	3	-	-	-	-	-	-	-	-	-	3	-	-	-	60	4	7	3
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>								
'82		00%			00%			00%											
'88		00%			00%			00%											
'95		00%			00%			00%			-43%								
'00		00%			00%			00%											
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-				
												'88	0		-				
												'95	140		-				
												'00	80		-				
Gutierrezia sarothrae																			
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	88	1	-	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	00	1	-	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	88	51	-	-	2	-	-	-	-	-	-	53	-	-	-	3533		53	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	00	4	-	-	-	-	-	-	-	-	-	4	-	-	-	80		4	
M	82	47	-	-	-	-	-	-	-	-	-	47	-	-	-	3133	5	5	47
	88	62	-	-	1	-	-	1	-	-	-	64	-	-	-	4266	5	4	64
	95	32	-	-	2	-	-	-	-	-	-	34	-	-	-	680	12	14	34
	00	157	-	-	2	-	-	-	-	-	-	159	-	-	-	3180	5	7	159
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	88	1	-	-	-	-	-	-	-	-	-	-	-	-	1	66		1	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	00	2	-	-	-	-	-	-	-	-	-	1	-	-	-	1	40		2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>								
'82		00%			00%			00%			+60%								
'88		00%			00%			.84%			-91%								
'95		00%			00%			00%			+79%								
'00		00%			00%			.60%											
Total Plants/Acre (excluding Dead & Seedlings)												'82	3133	Dec:	0%				
												'88	7865		1%				
												'95	680		0%				
												'00	3300		1%				

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Opuntia spp.																	
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	1	-	-	-	-	-	-	-	-	-	-	-	-	66		1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	00	1	-	-	-	-	-	-	-	-	-	-	-	-	20		1
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	8	-	-	2	-	-	-	-	-	-	-	1	-	666		10
	95	1	-	-	-	-	-	-	-	-	-	-	-	-	20		1
	00	3	-	-	1	-	-	-	-	-	-	-	-	-	80		4
M	82	15	-	-	-	-	-	-	-	-	-	-	-	-	1000	4 6	15
	88	19	-	-	1	-	-	-	-	-	-	-	1	-	1333	3 5	20
	95	37	4	-	1	-	-	-	-	-	-	-	-	-	840	4 15	42
	00	61	-	-	-	-	-	-	-	-	-	-	-	-	1220	4 11	61
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	2	-	-	-	-	-	-	-	-	-	-	1	1	133		2
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	00	1	-	-	-	-	-	-	-	-	-	-	-	-	20		1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'82		00%			00%			00%			+53%						
'88		00%			00%			13%			-60%						
'95		09%			00%			00%			+35%						
'00		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'82	1000	Dec:	0%		
												'88	2132		6%		
												'95	860		0%		
												'00	1320		2%		
Pinus edulis																	
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	00	1	-	-	-	-	-	-	-	-	-	-	-	-	20		1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'82		00%			00%			00%									
'88		00%			00%			00%									
'95		00%			00%			00%									
'00		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-		
												'88	0		-		
												'95	0		-		
												'00	0		-		